

Secret's History

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STN

USPATALL

11/29/2002

(FILE 'HOME' ENTERED AT 13:15:57 ON 29 NOV 2007)

FILE 'USPATFULL, USPATOLD, USPAT2' ENTERED AT 13:22:15 ON 29 NOV 2007

L1 89206 S (SINGLE OR MONO) (8A) (CRYSTAL#)
L2 24735 S (CZ OR CZOCHRALSKI)
L3 21675 S (PLURAL? OR MULTIP?) (8A) (HEATER#)
L4 868631 S (INDEPENDENT? OR SEPARAT?) (8A) (CONTROL? OR MANIPULAT? OR VARY
L5 14442 S (HEAT?(2W)SHIELD#)
L6 243382 S (CONTROL? OR VARY? OR MANIPULAT? OR ALTER? OR ADJUST? OR MODI
L7 10964 S L3 AND (VERTICAL?)

=> s 11 and 12 and 13 and 14 and 15 and 16 and 17

L8 2 L1 AND L2 AND L3 AND L4 AND L5 AND L6 AND L7

=> d 18 1-2 abs, bib

L8 ANSWER 1 OF 2 USPATFULL on STN

AB A semiconductor single crystal manufacturing apparatus which can manufacture a single crystal of high oxygen concentration to that of low oxygen concentration within a prescribed standard range of oxygen concentration, as a wafer material for semiconductor integrated circuits, with a high yield, is provided. Heat shields 20, 21 are provided in the entire annular area between respective adjacent heaters of the heaters 4a, 4b, 4c for heating the crucible 3 from the outside periphery side. By using the heat shields 20, 21 for localizing the respective heating regions for the heaters to actively control the temperature distribution for the crucible 3 and melt 8 in the crucible, a single crystal of high oxygen concentration to that of low oxygen concentration can be manufactured within a prescribed standard range of oxygen concentration with a high yield.

CAS INDEXING IS AVAILABLE FOR THIS PATENT

AN 2007:246417 USPATFULL
TI Semiconductor Single Crystal Manufacturing Apparatus
and Graphite Crucible
IN Iida, Tetsuhiro, Kanagawa, JAPAN
Noda, Akiko, Kanagawa, JAPAN
Tomioka, Junsuke, Kanagawa, JAPAN
PA Komatsu Denshiki Kinzouku Kabushiki Kasiha, Kanagawa, JAPAN, 254-0014
(non-U.S. corporation)
PI US 2007215038 A1 20070920
AI US 2005-594175 A1 20050331 (10)
WO 2005-JP6321 20050331
20060926 PCT 371 date

PRAI JP 2004-105341 20040331
DT Utility
FS APPLICATION
LREP WELSH & KATZ, LTD, 120 S RIVERSIDE PLAZA, 22ND FLOOR, CHICAGO, IL,
60606, US
CLMN Number of Claims: 10
ECL Exemplary Claim: 1-8
DRWN 7 Drawing Page(s)
LN.CNT 1069

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 2 OF 2 USPATFULL on STN

AB An improved system based on the Czochralski process for continuous growth of a single crystal ingot comprises a low aspect ratio, large diameter, and substantially flat crucible, including an optional weir surrounding the crystal. The low aspect ratio crucible substantially eliminates convection currents and

reduces oxygen content in a finished single crystal silicon ingot. A separate level controlled silicon pre-melting chamber provides a continuous source of molten silicon to the growth crucible advantageously eliminating the need for vertical travel and a crucible raising system during the crystal pulling process. A plurality of heaters beneath the crucible establish corresponding thermal zones across the melt. Thermal output of the heaters is individually controlled for providing an optimal thermal distribution across the melt and at the crystal/melt interface for improved crystal growth. Multiple crystal pulling chambers are provided for continuous processing and high throughput.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AN 2005:108177 USPATFULL

TI System for continuous growing of monocrystalline silicon

IN Bender, David L., Thousand Oaks, CA, UNITED STATES

PI ~~US 2005092236~~ A1 ~~20050505~~

AI ~~US 2004-789638~~ A1 ~~20040227 (10)~~

PRAI US 2003-517124P 20031103 (60)

DT Utility

FS APPLICATION

LREP MICHAEL HETHERINGTON, P.O. BOX 61047, PALO ALTO, CA, 94306, US

CLMN Number of Claims: 17

ECL Exemplary Claim: 1

DRWN 9 Drawing Page(s)

LN.CNT 1031

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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